#### PROJECT DESCPIRTION

<u>GENERAL</u>

THIS PROJECT CONSIST OF RECONSTRUCT OF AN EXISTING TRAFFIC CONTROL SIGNAL TO PROVIDE FOR ADDITIONAL NORTH-SOUTH LANES AND A SEPERATE LEFT TURN LANE FROM DUVALL HIGHWAY. THE INSTALLATION WILL INCLUDE INTERSECTION LIGHTING. EDWIN RAYNOR BLVC./MD 173 WILL RUN IN THE NORTH-SOUTH DIRECTION.

#### INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FOUR PHASE, FULLY ACTUATED MODE WITH THE NORTH-SOUTH APPROACHES RUNNING CONCURRENTLY, EXCLUSIVE/PERMISSIVE LEFT TURN PHASE SHALL BE PROVIDED FOR THE NORTHBOUND TRAFFIC. THE EAST AND WEST APPROACHES WILL OPERATE IN A SPLIT PHASE.

## CONTROLLER REQUIREMENT

INSTALL A FULL TRAFFIC ACTUATED, EIGHT PHASE CONTROLLER WITH TWO (2), FOUR-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS, INTERSECTION MONITOR WITH BATTERY BACK-UP FOR PHONE DROP, AND ASSOCITED HARNESS, HOUSED IN A NEMA SIZE '6' BASE MOUNTED CABINET.

PROJECT CONTACT PERSON ARE:
THE CONTACT PERSONS FOR DISTRICT #5 ARE AS FOLLOWS:

MR. PAUL D. ARMSTRONG ACTING DISTRICT ENGINEER PHONE: (410) 841-5450

MR. JOHN MAYS ASSISTANT DISTRICT ENGINEER-UTILITY PHONE: (410) 841-5450

MR. LAWRENCE E. ELLIOTT

MR. RICHARD L. DAFF, SR. CHIEF, TRAFFIC OPERATIONS DIVISION PHONE: (410) 787-7630 ASSISTANT DISTRICT ENGINEER-TRAFFIC PHONE: (410) 841-5450

MR. ERNEST L. HODSHON ASSISTANT DISTRICT ENGINEER-MAINTENANCE PHONE: (410) 841-5462

### MAINTENANCE OF TRAFFIC

THE FOLLOWING TRAFFIC CONTROL STANDARDS APPLY ON THE TRAFFIC SINGAL INSTALLATION.

MD 104.37-01 MD 104.38-01 MD 104.39-01

MD 104.40-01 MD 104.41-01 MD 104.43-01

#### **EQUIPMENT LIST**

#### A. EQUIPMENT TO BE FURNISHED BY THE ADMINISTRATION.

IT	EM N	10.	DESCRIPTION	SPECIFICATION SECTION	UNIT	QUANTITY
	9001		12' ONE-WAY, THREE-SECTION (R,Y,G) SIGNAL HEAD, WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING	814	EA	5
	9002		12' ONE-WAY, FOUR-SECTION (R,Y,G,GA) TRAFFIC SIGNAL HEAD, WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING	814	EA	2
santi	9003		12", ONE-WAY, FIVE-SECTION (R.Y.YA.G.GA) TRAFFIC SIGNAL HEAD, WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING.	814	EA	I
	9004		8"/12", ONE-WAY, FIVE-SECTION (R.Y.YA.G.GA) TRAFFIC SIGNAL HEAD, WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING.	814	EA	l
	9005		12", ONE-WAY, TWO-SECTION (DON'T WALK-WALK) PEDESTRIAN SIGNAL HEAD WITH ADJUSTABLE BRACKET FOR POLE MOUNTING AND CUTAWAY VISORS	816	EA	2
	9006		PEDESTRIAN PUSH BUTTON AND SIGN R10-4(1)	817	EA	2
	9007		EIGHT-PHASE, FULL TRAFFIC-ACTUATED, SOLID STATE, DIGITAL CONTROLLER WITH INTERSECTION MONITOR WITH BATTERY BACK-UP FOR PHONE DROP, HOUSED IN A NEMA SIZE 6" BASE MOUNTED CABINET	816	EA	J
	9008		SHEET ALUMINIM SIGNS	813	SF	41
			D3-2 SIGN. (16" X VARIES) SPAN WIRE MOUNT (4EA)			4
			R3-5L SIGN. (30" X 36") SPAN WIRE MOUNT (1EA)			l
			R1-12 SIGN. (30" X 36") SPAN WIRE MOUNT (1EA)			l
	9009		LOOP DETECTOR AMPLIFIER, FOUR-CHANNEL, TIME DELAY OUTPUT		EA ·	3

#### B. EQUIPMENT TO BE FURNISHED AND /OR INSTALLED BY THE CONTRACTOR. SPECIFICATION UNIT ITEM NO.: DESCRIPTION

1001 2001	MAINTENANCE OF TRAFFIC		E <b>A</b>	
	TEST PIT EXCAVATION	104	CY	3
5001	5% WHITE THERMOPLASTIC PAVEMENT MARKING TAPE. FOR LANE LINE HAPPTM	SP-555	LF	1800
5002	24". WHITE THERMOPLASTIC PAVEMENT MARKING TAPE FOR CROSS WALK μΑρρτή	SP555	LF	/ 150
5003	24" WHITE THERMOPLASTIC PAVEMENT MARKING TAPE FOR STOP LINE HAPPTAY	SP-555	LF	180
5004	5" DOUBLE YELLOW THERMOPLASTIC PAVEMENT MARKING AND TAPE	SP-555	LF	1800
5005	5" WHITE THERMOPLASTIC PAVEMENT SKIP LINE (3% LINE- 9' SKIP) MARKING TAPE HAPPTEN	SP555	LF	600
5006	FURNISH AND INSTALL THERMOPLASTIC ARROW- RIGHT-2EA, STRAIGHT-2A, LEFT-2A HAPPIM	SP-555	E <b>A</b>	14
5006-1	FURNISH AND INSTALL THERMOPLASTIC. "ONLY" HAPPET M	SP-555	EA	
5007	REMOVE EXISTING PVT MARKINGS - ANY WIDTH	SP-555	LF	4200
8001	FURNISH AND INSTALL CONCRETE FOR SIGNAL POLE AND CONTROL CABINET FOUNDATION	801	CY	13.2
8002	FURNISH AND INSTALL 27 FT MAST ARM POLE WITH 50 FT AND 60 FT TWIN MAST ARMS	818	EA	1
8003	FURNISH AND INSTALL 21 FT MAST ARM POLE WITH 38 FT MAST ARM	818	E <b>A</b>	[
8004	FURNISH AND INSTALL 27 FT MAST ARM POLE WITH 60 FT MAST ARM	818	EA	***************************************
8005	FURNISH AND INSTALL 15 FT LIGHTING ARM FOR MAST POLE.	806	EA	2
8006	FURNISH AND INSTALL 250W HPS LUMINAIRE WITH PHOTOCELL	806	EA	2
8007	INSTALL TRAFFIC SIGNAL HEAD	814	EA	9
8008	INSTALL PEDESTRIAN SIGNAL HEAD	814	EA	2
8009	INSTALL PUSH-BUTTON AND SIGN	817	EA	2
8010	INSTALL CONTROLLER AND CABINET-BASE MOUNT		EA	
8011	FURNISH AND INSTALL HANDHOLE	816 811	EA	10
8012	FURNISH AND INSTALL SAW CUT FOR LOOP DETECTOR	815	LF	735
8013	FURNISH AND INSTALL 1 IN. LIQUID TIGHT, FLEXIBLE, NON-METALLIC CONDUIT FOR DETECTOR SLEEVE	805	LF	50
8014	FURNISH AND INSTALL 3 IN., SCHEDULE 80, RIGID PVC CONDUIT-TRENCHED	805	LF	780
8015	FURNISH AND INSTALL 4 IN., SCHEDULE 80, RIGID PVC	805	LF	230
8016	FURNISH AND INSTALL 4 IN., SCHEDULE BO, RIGID PVC	805	 LF	50
8017	FURNISH AND INSTALL GROUND ROD - 3/4 IN. DIAMETER X	804		4
	10 FT LENGTH FURNISH AND INSTALL STRANDED BARE COPPER GROUND		EA	
8018	WIRE (6 AWG) FURNISH AND INSTALL MICOR-LOOP PROBE SET. WITH	804		190
8019	500 FT LEAD-IN FURNISH AND INSTALL MICRO-LOOP PROBE SET. WITH	815.01/.02	EA .	4
8020	1000 FT LEAD-IN FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE	815.01/.02	EA	[
8021	TUBING (14 AWG)  FURNISH AND INSTALL ELECTRICAL CABLE, 2 - CONDUCTOR,	810	LF	1450
8022	ALUMINUM SHIELDED (14 AWG)  FURNISH AND INSTALL ELECTRICAL CABLE, 2 - CONDUCTOR	810	LF	410
8023	(14 AWG)  FURNISH AND INSTALL ELECTRICAL CABLE, 3 - CONDUCTOR	810	LF	170
8024 8025	(14 AWG)  FURNISH AND INSTALL ELECTRICAL CABLE, 5 - CONDUCTOR	810 810	LF LF	170
8026	FURNISH AND INSTALL ELECTRICAL CABLE, 7 - CONDUCTOR		<del></del>	
	FURNISH AND INSTALL ELECTRICAL CABLE, 2 - CONDUCTOR	810	<u>LF</u>	680
8027 8028	12 AWG (LIGHTING) REMOVE HANDHOLE	810	<u>LF</u>	315
8029	REMOVE EXISTING TRAFFIC SIGNAL HEADS	822 822	<u>EA</u> EA	6 9
8030	REMOVE SPAN WIRE AND SIGNS	822	EA	1
8031	REMOVE EXISTING STRAIN POLES	822	EA	4
8032	INSTALL CONTROL AND DISTRIBUTION EQUIPMENT	822	EA	ı
8033	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE			2

C. EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION AT: 7941 CONNELLEY DR, HANOVER, MD 21076

ITEM NO		SPECIFICATION SECTION	UNIT	QUANTITY
	CONTROLLER AND CABINET		EA	-
			2-11/10	

#### NOTES:

I. ALL EQUIPMENT TO BE REMOVED AND NOT LISTED ABOVE SHALL BECOME THE PROPERTY OF THE CONTRACTOR. 2. THE CONTRACTOR SHALL NOTIFY THE SHA AT (410) 787-7652 AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

LUKAS

10622 Great Arbor Drive

Potomac, Maryland 20854

ITEM	NO.	DESCRIPTION		SPECIFICATION SECTION	UNII	QUANTITY
		CONTROLLER AND CABINET	·		EA	l

# WIRING DIAGRAM

PHASE CHART

PHASE 1 & 6

1+6 CHANGE

PHASE 2 & 6

2 & 6 CHANGE

PHASE 3

3 CHANGE

PHASE 4 4 CHANGE

ALT PHASE 4

PED CLEARANCE

ALT 4 CHANGE

FLASHING OPERATION 2 3 4 5 6 7 8 9 10 11

G | R | R | R | R | R | DW | DW | 1

G R R R R R DW DW

R R WK WK

G G G R R R R DW DW

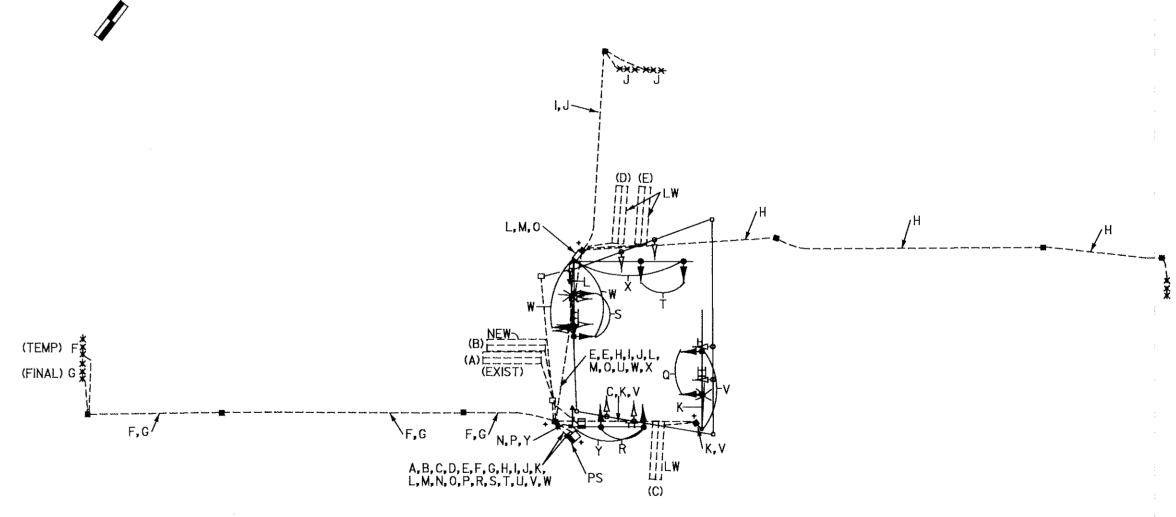
Y Y Y Y Y R R R R DW DW I

R R R R G G R R F/DW F/DW

R R R R Y Y R R DW DW

FL/Y FL/Y FL/Y FL/Y FL/R FL/R FL/R FL/R DARK DARK

R R R R Y Y R R DW DW | \( \nabla \)



A,B,C,D,E - 2 CONDUCTOR ELECTRICAL CABLE (ALUMINUM SHIELDED)

F,G,H,I,J - MICRO-PROBE LEAD-IN

- 2 CONDUCTOR ELECTRICAL CABLE (NO. 10 AWG) (LIGHTING) - 2 CONDUCTOR ELECTRICAL CABLE, (NO. 14 AWG) (PUSH BUTTONS) - 3 CONDUCTOR ELECTRICAL CABLE, (NO 14 AWG) (PED SIGNALS)

Q,R,S,T, - 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG) U,V,W,X,Y - 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)

- LOOP WIRE

- MICRO PROBE LOOP - POWER SUPPLY

APPROVALS REVISIONS ASST. TRAFFIC ENGINEERING RESION DIVISION ASST. DISTRICT EXGINEER, TRAFFIC CHIER TRAFFIC ENGINEERING DESIGN DIVISION RECONSTRUCTED FOR NEW GEOMETRICS

DIRECTOR, TRAFFIC & SAFETY



MARYLAND DOT - STATE HIGHWAY ADMINISTRATION Office of Traffic & Safety

TRAFFIC ENGINEERING DESIGN DIVISION (TRAFFIC SIGNAL PLAN)

MD 173 AND DUVALL HWY. /VALLEY ROAD

TS NO. F.A.P. NO. 21 S.H.A. NO. COUNTY: 1"=20' ANNE ARUNDEL T.I.M.S. NO. DATE: <u>AUGUST, 1999</u> LOG MILE: 02017304.17

DRAWN BY: AME CHECKED BY: AAL SCALE:

SHEET NO. D-Ø91

ONI ZETADOZZA Transportation Planning and Engineering Consultants

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